Sinske HATTORI* and Masami MIZUTANI*: **A range extension for *Makinoa*, a monotypic genus of thalloid Hepaticae****

服部新佐・水谷正美： 葉状苔類の単型属マキノゴケの分布域拡張

Makinoa is a monotypic genus of the Metzgeriales, and for this single genus the family, Makinoaceae, was proposed. Recently, however, Schuster (1964) reduced it to a subfamily, Makinoideae, under Pelliaceae. *Makinoa* is a unique genus and its remarkable characteristics include, among others, the biggest known spermatozoids among the bryophytes, the large elaters with unique rib-like bands of thickenings, the cylindrical capsule dehiscent by one longitudinal line, rarely more or less incompletely by 2 valves, and the androecium in a crescentic disc on the antical face of the shoot apex. When sterile, the large dark-green thallus with margins pale, thin and undulate, and the dense, red-brown rhizoids are impressive in the field; and under the microscope the 2-3 celled, filamentous, ventral scales with a hyaline mucilage cell are also unique.

Makinoa crispata was originally described from Japanese material as *Pellia crispata* by Stephani (1897, p. 103). Miyake (1899) investigated it cytologically, as well as taxonomically, and proposed the genus, *Makinoa*, for *Pellia crispata*. Schiffner (1901) studied the morphological details of *Makinoa*, and Horikawa (1929) beautifully illustrated *M. crispata*, adding many Japanese localities. Hattori (1951, p. 89-90, fig. 26, pl. V, 44) observed the oil-bodies of this species and (1959, p. 152) examined the type of *Symphyogyna gigantea* Steph. (Japan, Ubayu, leg. U. Faurie; in herb. G) and reduced it to a synonym under *Makinoa crispata*.

Many Japanese bryologists have recorded *Makinoa* from various localities in Japan. The northernmost known locality is Mt. Shiribeshi in Hokkaido, at about 43° N. Lat., and the highest known limit is 1300-1400 m above sea level at Ose bog in the Kanto district. It was found, by consulting about a hundred collections of *Makinoa* in our herbarium, that it usually occurs at elevations in

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Japan below 1000 m, and is most frequent from about sea level to 500 m.

Makinoa grows on soil covering rocks, ledges or banks, tuff-cliffs, or boulders along stream, rarely on decayed wood and humus under forests. We can easily observe large populations of *Makinoa* on shaded tuff-cliffs and -banks along the roads and paths near our laboratory in Nichinan. *Makinoa* usually grows in shaded or semishaded and moist sites, but rarely is found in almost constantly wet habitats.

The frequency of occurrence decreases northward, and there is only one known locality in Hokkaido. It may be interesting that *Makinoa* is very rare along the Japan Sea coast of Honshu; only two localities are recorded, Akita in Akita Prefecture of the Tohoku district, and Kamo in Niigata Prefecture of the Chubu district. In contrast *Makinoa* occurs rather frequently along the south-eastern flank of Japan.

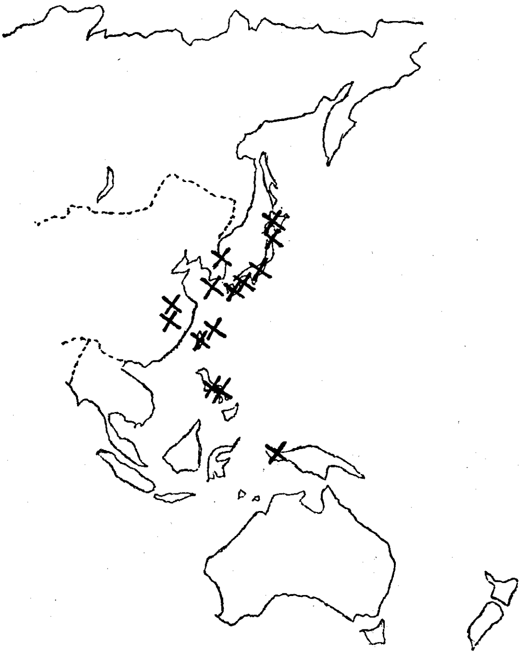
Horikawa (1934, p. 134) recorded this species in Ryukyu Is. and many localities in Taiwan. The substrate usually is wet soil and decaying logs, seldom rocks or trunk of trees. He (1935, p. 212; 1935a, p. 762) also recorded it from Quelpart at an elevation of 900 m, and from Mt. Kongo, prov. Kogen, Korea; both on wet soil.

The records from China include "Triefende Sandsteinfelsen der subtropische Stufe in der Waldschlucht hinter der Schule auf dem Yolu-schan bei Tschangscha 100 m, prov. Hunan" by Nicholson (1930, p. 8), on decayed wood in the montane areas along the lower part of Yangtze (Chen, 1958, p. 283), and on moist soil and boulders along stream, Mt. Hwangshan, 30°10′ N. Lat. and 118°11′ E. Long. (Chen & Wu, 1965, p. 13).

Campbell (1915, p. 371) gave an interesting comment: "Die Gattung *Makinoa* ist nur durch eine einzige japanische Art, *M. crispata*, bekannt. Wärend der Verfasser auf den Philippinen war, fand er auf Mt. Banajao eine grosse Menge Exemplare, die anscheinend zu *Makinoa crispata* gehörten. Sie wurden zur Feststellung an Stephani gesandt, welcher erklärte, dass es eine neue Art von *Symphyogyna* sei. Diese neue Art unterscheidet sich jedoch von *Symphyogyna* in der Struktur des Thallus, indem sie kein Leitgewebe in der Mittelrippe hat. Keine Sporenkapseln wurden entdeckt, aber sowohl die männlichen wie die weiblichen Pflanzen hatten Ähnlichkeit mit den Abbildungen von *Makinoa* bei Miyake. Eine ähnliche, vielleicht identische Form wurde in der Bergprovinz von Luzon in der Höhe von ungefähr 2000 m gefunden."

Though we could not see Campbell's collection, we think the above-described form surely belongs to *Makinoa*, as Campbell believed, because we found *Makinoa crispata* in the bryophyte collections made on the same mountain (Mt. Banahao) and another by Drs. A. J. Sharp and Z. Iwatsuki as a part of our joint-project supported by the U. S.—Japan Scientific Cooperative Program. The data is as follows:

Philippines: Luzon, on fallen branches with *Schistochila blumei*, 1800-2300 m, between Ilalim (bottom of crater) to Durongawan III, Mt. Banahao, May 22, 1965, coll. Z. Iwatsuki, A. J. & Evelyn Sharp; in herb. NICH 265629, 265630, duplicates in herb. TENN; on moist cliff and boulders, Bulusan Lake to Second Lake, Mt. Bulusan, 600-1500 m, May 31, 1965, coll. Z. Iwatsuki, A. J. & Evelyn Sharp; female plants with young involucres; in herb. NICH 265907, 265923, dupl. in TENN.



Map 1. Distribution of *Makinoa crispata* (×).

Furthermore, we had found *Makinoa crispata* in a small hepatic collection made in Vogel Kop, New Guinea, and sent to us for identification from the Paleobotany Department, Natural History Museum, Stockholm:

N.W. (Dutch) New Guinea: Vogel Kop, on decaying tree trunk, Bivack October south of Manokwari, July 30, 1949, coll. Sten Bergman 44; female plants with young involucres; in herb. NICH, dupl. in herb. S-PA.

From the above data we made a map showing the geographical range of *Makinoa crispata*. It is possible that in the future this species will be found also in Celebes or Borneo. But we do not anticipate its occurrence in other islands of the Malayan Archipelago or Malay peninsula, since rather extensive field surveys of bryophytes have been made in Java and adjacent areas, but no *Makinoa* has been collected.

In Stephani's Icones Hepaticarum (inedit.) is an unpublished species, "*Symphyogyna maxima* Steph., Luzon, leg. Campbell". Judging from the Icones, this species was based on the above-mentioned Campbell material and is identical to *Makinoa crispata*.

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マキノゴケ (*Makinoa crispata*) は日本から，はじめ他属下に記載され，まもなく三宅驥一博士の形態および細胞学的研究の結果，新属 *Makinoa* が設立された。苔類ウロ

コゼニゴケ目に属しPelliaceaeに近いが，非常に変っているので服部はMakinoaceaeを認めたが，近年R.M. Schusterは前記Pelliaceaeの1亜科にした。近縁種は全く無く，マキノゴケただ1種である。本種の分布については日本国内から沢山の記録があるが，西南日本，太平洋側の低地に多く，日本海側や北日本に少い。日本海沿岸からはごく僅かの記録しか無く，北海道からは1箇所しか知られていない。国外では朝鮮，東支那，台湾に知られていたが，今回フィリッピンとニューギニアを新産地として報告する。ジャバ島やその附近のコケはよく採集されているが本種の記録は無い。調査のゆきとどいて居ないボルネオ，セレベスあたりからは発見される可能性も残っているが，何れにせよ日本から台湾，フィリッピン，ニューギニアと云う分布は面白い分布型である。

□高取治輔画：**彩色写生図日本の薬用植物** Color Atlas, Medicinal Plants of Japan. 1966，広川書店，A4版，15,000円．薬用植物113種を80図版に描写した原色図集である。和文と英文の解説を付してあるが，「著」とせず「画」としたところに，博士の描画に対する自信がうかがわれて興味が深い。その自信のとおり，色彩図は刻明かつ正確で，立派なものである。専門の絵画きでないから，画きすぎた感じがないでもないが，しかしごまかしのない正直な画であるところに価値があると思う。印刷用紙の色や質，活字インクの色など調和のとれた仕上りで，豪華限定版と銘うっているのは当然であろうが，定価15,000円は個人には負担である。二，三気付いたことは，Fig. 3-Bのタンポポ*Taraxacum platycarpum*はセイヨウタンポポ*T. officinale*であり，Fig. 21-Bのシャクナゲは産地（長崎県八郎岳自生）からみてツクシシャクナゲであろう。また学名でup-to-dateでないもの（例えばクズ）がある。巻末に索引が欲しかった。（佐竹義輔）

□ G. Erdtman: **Pollen and Spore Morphology.** Gymnospermae, Bryophyta (An Introduction to Palynology, III). pp. 191, pls. 24. Stockholm. 1965. 9–12頁はMegasporeと科のABC順に花粉の記載，13–82頁は*Abies*から*Zamia*まで属のABC順に花粉の記載，83–91頁までBryophytaの序論，92–156頁は*Acrocryphaea*から*Zygodon*まで属のABC順に胞子の記載，157–182頁まで関係文献集，183–191頁は学名索引，最後にpls. 1–24がついている。Fig.とPlateは精密な美しい顕微鏡写真で十分楽しめる。第4巻はPteridophytaとAngiosperms (additions) を予定。ついでながら日本産の面白い胞子（特にコケ）の提供をErdtman博士は希望していられる。またシダやコケの胞子の研究を氏の編集する代表的専門誌Grana Palynologicaに寄稿を歓迎するとのこと（英文または独文に限る）。氏のアドレスは次のとおりである。

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